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ABSTRACT

This brief document, produced by the Alaska Department of Education, presents criteria designed to be used by school administrators, professional staff and community representatives to assess mathematics programs and provide a basis for establishing goals in teaching mathematics. Criteria cover staffing, leadership, professional development, diagnosing and describing, scope and sequence, resources, program, and program evaluation. Additional possible uses for the criteria include: (1) validation of exemplary programs and promising practices; (2) self-appraisal by building, district, or community level; (3) development of long range goals; (4) planning for staff development, inservice, and training activities; and (5) disseminating information and improving public relations. (MP)

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Promising Practices

Criteria for Excellence

Mathematics

SE 037 062

Criteria for Excellence
MATHEMATICS

These criteria were designed to be used by school administrators, professional staff and community representatives to assess mathematics programs and to provide a basis for establishing goals in teaching mathematics. Other possible uses for information generated by these criteria include:

Validation of exemplary programs and promising practices
Self-appraisal (by building, district, community level)
Development of long range goals
Planning for staff development, inservice and training activities
Disseminating information and improving public relations.

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CRITERIA OF EXCELLENCE FOR MATHEMATICS

STAFFING

1. Classroom Teachers

   A. Are all math teachers graduates of an approved Teacher Education program, and do they possess Type A Alaska Teachers Certificates? Yes / No

   B. Do all elementary teachers have a minimum of nine semester hours in mathematics for elementary teachers including a course in methods of teaching elementary math? 1 2 3 4 5

   C. Do all secondary math teachers have a minimum of a college minor in mathematics for secondary teachers including a course in methods of teaching secondary math? 1 2 3 4 5

2. Paraprofessionals and Volunteers

   A. Is there an organized program of recruitment of paraprofessionals and volunteers? 1 2 3 4 5

   B. Is an appropriate training program provided for those assisting in math instruction, including training in: 1 2 3 4 5

      1. Instructional techniques appropriate to the duties of the paraprofessional or volunteer?
      2. Record keeping?
      3. Administrative framework?
      4. Physical plant?
      5. Materials?
      6. Competencies being developed at each level?
      7. Operation of equipment?

   C. Is there a continuing inservice based on assessed needs? 1 2 3 4 5

LEADERSHIP

3. Has a qualified individual(s) been identified and given the authority, responsibility and time to develop and coordinate the mathematics program as follows:

   A. Does the coordinator understand the components of the total mathematics program and is he/she sensitive to the needs of students and teachers? 1 2 3 4 5

Rating Scale:
(1) not started (2) started/little progress (3) some progress (4) almost achieved (5) achieved

B. Does the coordinator provide the leadership and resources to foster the development, review and updating of an excellent mathematics program? 1 2 3 4 5

C. Does the coordinator hire well qualified personnel, or recommend for hiring, if not in a hiring position? 1 2 3 4 5

D. Does the coordinator insist on inservice teacher education in math? 1 2 3 4 5

E. Does the coordinator demonstrate a commitment to the mathematics program by presenting a strong case for budgetary support to the school board, the central administration, and the community? 1 2 3 4 5

F. Does the coordinator provide encouragement and resources for teachers to attend professional meetings? 1 2 3 4 5

PROFESSIONAL DEVELOPMENT

4. Do those involved in the teaching of mathematics receive continuing inservice education in the application of mathematical skills as follows:

   A. Are inservice programs based on the ongoing assessment of program needs in mathematics instruction? 1 2 3 4 5

   B. Are provisions made for participants to be involved in professional development activities? 1 2 3 4 5

DIAGNOSING AND PRESCRIBING

5. Is an ongoing comprehensive system of evaluation designed to include:

   A. Proficiency evaluation for each student upon entry? 1 2 3 4 5

   B. Ongoing assessment of skills? 1 2 3 4 5

   C. Assessment of degree to which local goals have been met? 1 2 3 4 5

6. Have personalized programs been developed to meet identified needs? 1 2 3 4 5

7. Is the learner informed of progress, and does learner help to plan personal goals and objectives? 1 2 3 4 5

8. In addition to the regular program, has provision been made for:

   A. Gifted and talented students? 1 2 3 4 5

   B. Remediation of students? 1 2 3 4 5

   C. Special interests of students? 1 2 3 4 5

Rating Scale:
(1) not started (2) started/little progress (3) some progress (4) almost achieved (5) achieved

SCOPE AND SEQUENCE

9. Is the mathematics program developmental, based on a scope and sequence of skills K-12 as follows:
   - A. Scope and sequence of skills have been adopted and are used in instruction and evaluation? 1 2 3 4 5
   - B. Horizontal and vertical articulation procedures have been established and are being followed? 1 2 3 4 5

RESOURCES

10. Are resource materials and activities available and chosen in accordance with the competency of each student? 1 2 3 4 5
11. Is there a continual review and inspection of new materials? 1 2 3 4 5
12. Is ordering of materials carefully coordinated to meet program objectives? 1 2 3 4 5
13. Is a resource materials center accessible to users? 1 2 3 4 5
14. Does each center have a collection which contains current publications relating to mathematics education? 1 2 3 4 5
15. Are written guides provided the teachers for effective use of resources? 1 2 3 4 5
16. Are services of specialized personnel available as an integral part of the mathematics program? 1 2 3 4 5

PROGRAM

17. Do some components of the mathematics program include development of:

		Yes	No
Algebraic concepts?		_____	_____
Computer and calculator awareness?		_____	_____
Development of mathematics?		_____	_____
Geometric concepts?		_____	_____
Graphs, making and reading?		_____	_____
Measurement skills?		_____	_____
Metric system awareness?		_____	_____
Number theory?		_____	_____
Numeration system?		_____	_____
Operations involving:	Decimals?	_____	_____
	Fractions?	_____	_____
	Integers?	_____	_____
	Whole numbers?	_____	_____
Place value concepts?		_____	_____
Probability and statistics?		_____	_____
Ratio, proportions, percents?		_____	_____
Reading mathematics:	Comprehension?	_____	_____
	Directions?	_____	_____
	Word problems?	_____	_____
Reasoning:	Logic?	_____	_____
	Problem-solving?	_____	_____
Recreational math?		_____	_____

Rating Scale:
(1) not started (2) started/little progress (3) some progress (4) almost achieved (5) achieved

18.	Is accommodation made for varying learning styles, rates and abilities?	1	2	3	4	5
19.	Has provision been made through extended learning for gifted and talented students?	1	2	3	4	5
20.	Has provision been made for students with learning difficulties?	1	2	3	4	5
21.	Is bilingual instruction provided as determined by the goals and objectives of the local community?	1	2	3	4	5
22.	Is skill attainment continually recorded and maintained throughout the grades?	1	2	3	4	5
23.	Do teachers of mathematics at all levels teach the reading skills that apply to mathematics?	1	2	3	4	5
24.	Is the learner guided to realize how useful and enjoyable mathematics can be?	1	2	3	4	5
25.	Is provision made to incorporate the findings of current research relating to how students learn mathematics?	1	2	3	4	5
26.	Is a wide range of manipulative materials available for student use?	1	2	3	4	5
27.	Is the physical facility adequate for the students' programs and the teaching style of the teacher?	1	2	3	4	5

PROGRAM EVALUATION

28.	Does the administrator responsible for the program have a planned procedure for evaluating the mathematics program?	1	2	3	4	5
29.	Have lay members of the community been involved in evaluating the mathematics program?	1	2	3	4	5
30.	Are teachers involved on a regular basis in program evaluation?	1	2	3	4	5
31.	Do students participate in a planned procedure of program evaluation?	1	2	3	4	5
32.	Are changes incorporated as needed?	1	2	3	4	5

Rating Scale:
(1) not started (2) started/little progress (3) some progress (4) almost achieved (5) achieved

Criteria of Excellence for

Mathematics

DISTRICT PROFILE SHEET

Mark your rating for each numbered item on a scale of 1 to 5 or any point in between.

		Not Started 1	Little Progress 2	Some Progress 3	Almost Achieved 4	Achieved 5
STAFFING						
1A	Teachers certified					
B	Teachers have nine hours elementary math					
C	Teachers have high school math minor					
2A	Paraprofessional recruitment					
B	Paraprofessional program training					
C	Paraprofessional inservice					
LEADERSHIP – program coordinator						
3A	Knows components					
B	Fosters development, review					
C	Hires qualified people					
D	Insists on inservice					
E	Is committed					
F	Encourages professional meetings					
PROFESSIONAL DEVELOPMENT						
4A	Based on needs					
B	Participants involved					
DIAGNOSING AND PRESCRIBING						
5A	Proficiency evaluation					
B	Ongoing assessment					
C	Local goals					
6	Personalized programs					
7	Learner involved					
8A	Gifted and talented					
B	Remedial students					
C	Special student interests					
SCOPE AND SEQUENCE						
9A	Use in instruction and evaluation					
B	Articulation					
RESOURCES						
10	Activities to student ability					
11	Continual review					
12	Coordinated to objectives					
13	Accessible					
14	Current publications					
15	Written guides					
16	Specialists available					

(Continued on other side)

	Not Started	Little Progress	Some Progress	Almost Achieved	Achieved
PROGRAM	1	2	3	4	5
17 Contains basics					
18 Learning styles, rates					
19 Extended learning					
20 Learning difficulties					
21 Bilingual instruction					
22 Skill recordkeeping					
23 Content reading					
24 Useful/enjoyable					
25 Current research					
26 Manipulatives					
27 Physical facilities					
PROGRAM EVALUATION					
28 Planned procedure					
29 Lay involvement					
30 Teacher involvement					
31 Student involvement					
32 Changes incorporated					

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